

Searching for managerial opportunism in diversifying acquisitions...

Searching for faint traces of managerial opportunism in french diversifying acquisitions

Frédéric Perdreau
CREREG-Axe Finance
Faculté de Sciences Economiques
Université de Rennes 1
7, Place Hoche
35000 Rennes
Email : frederic.perdreau@univ-rennes1.fr
tél. : 02 99 25 35 57
Fax : 02 99 25 35 64

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Abstract : We are looking for traces of managerial opportunism in french diversifying acquisitions. Indeed, following various theories, diversification is seeking by managers. Furthermore, recent empiric evidences show that corporate diversification is value destructive for shareholders. Using classical OLS methodology with diversification, management ownership and performance variables, we find some evidence of managerial opportunism. But classical methodology presents two shortages. First, it supposed a unique sense of causality. In particular, firm diversification is supposed to impact firm performance without considering the inverse relationship (from performance to diversification). This one-way analysis can create biases in the estimated results. Second, this OLS methodology doesn't permit to take simultaneously the relationship between our variables. Noticing that this classical methodology is not well adapted to the problem, we submit our data to a system of simultaneous equations. Using this system, according to us better adapted, the faint traces of managerial opportunism vanishes. This is the case in particular because the negative impact of diversification on performance disappears when we consider a non recursive relation between the variables. We derive others surprising results from our simultaneous equations framework. Management stake in the equity can influence or be influenced by the performance depending on whether the performance is measured at the firm or at the operation (acquisition) level. Together, these results suggest that we have to be cautious when searching for managerial opportunism in sample and statistical studies. If manager *opportunism inclination* can be suspected in this kind of studies, it has to be distinguished from manager *opportunism behavior* which is far more difficult to exhibit.

Résumé : Selon différentes théories, la diversification des activités de l'entreprise est désirable par le dirigeant. Par ailleurs, les résultats empiriques récents font apparaître les stratégies de diversification comme destructrice de valeur pour l'actionnaire. Nous recherchons les signes d'un opportunisme managérial dans un échantillon d'acquisitions. Ayant constaté les faiblesses et les biais éventuels qu'implique la méthodologie classique des régressions selon les MCO, nous soumettons nos données à un système d'équations simultanées, selon nous mieux spécifié. Les signes tangibles d'un opportunisme managérial par diversification s'évanouissent alors, en particulier parce que la diversification n'apparaît plus comme cause d'une faible performance.

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1. Introduction

This article studies the performance of acquisitions by the French enterprises in tie with the part of the capital owned by their managers and the strategic tendency that reveal these operations. The objective of the study is to verify if the ownership of capital by managers incites them to avoid value destructive decisions for shareholders and to search for value creation. This idea became a standard hypothesis in the theoretical literature and has been developed extensively and amended since.

Among decisions that may have an impact on the firm's value, the diversification of its activities is an important element. The corporate diversification is not necessarily value destructive, but it weighs on this strategic orientation a suspicion of managerial discretion that could go against the shareholders' interest. The manager would try by corporate diversification to increase his power, the size and the growth of the firm (Williamson 1963, Baumol 1959), to reduce his risk of employment (Amihud and Lev 1981) or to entrenched himself by overinvestments in activities where he can exercise his specific competences (Shleifer and Vishny 1989). Prior studies seem to establish a negative relationship between diversification and value since 1980 in United States (Berger and Ofek 1995, Campa and Kedia 1999). In France the relationship between diversification and value is little documented. Godard (1996, p. 372-374) observes a negative impact of the diversification on the performance (Tobin's Q in particular). This relation remains to confirm with other measures of diversification.

To impute a diversification's discount to managerial opportunism, we have to integrate in the study a variable that takes in account the manager's interest to undertake a diversification. The part of capital owned by the manager plays this cast. By partially determining the importance of the manager's control by shareholders, this part of capital influences the interest he has to protect his «human capital». Therefore the part of capital owned by managers influences his inclination to undertake a diversification for

entrenchment or risks reduction motives. Besides, representing the financial interest that he possesses in the firm, a capital ownership by manager should incite him not to undertake value destructive acquisitions.

The interest of this article is not only to replicate tests already led in other countries. The present survey reexamines the treatment of data and the interpretation of prior results. Indeed, most studies suppose that strategy influences performance without considering the inverse causality. This *a priori* statement may have important consequences. First it incites to believe that the manager, as responsible and decision-maker of the strategy, encourages his interest against those of shareholders. Second, it can also drive to bias in the results of the estimated models, and so in the interpretation of these results. We therefore submit our data to a simultaneous equations system permitting to take in account the reciprocal relations between our variables.

The integration of the ownership structure, the performance and the diversification within a simultaneous equation framework tempt to give elements of answer to three questions : do managers take better decisions because they possess more actions ? Does the strategic tendency followed at the time of the acquisition explain the performance for shareholders ? Finally, can one discover through the study of these relations a manager's opportunist behavior at the time of acquisitions ?

The empiric framework is the one of acquisitions by the french firms quoted on the period 1991-1997. This framework proves to be indeed particularly adapted to the object of the survey. Acquisitions require a manager's strong engagement (prospecting, bargaining) where his possible opportunist behavior may be observable (Shleifer and Vishny 1988). These operations also allow us to apply a «measure» of the consistent strategy (diversification vs. specialization). Finally they permit to appreciate the performance of the operation for the shareholders through the classic abnormal returns at the announcement date of the event. Since a majority of studies leans on the Tobin's Q to measure the performance, we also lead tests with a proxy of this variable, we then observe the performance of the firm in general and not those of the particular event that constitutes the acquisition.

We show that the diversification, if it is measured in tendency at the time of acquisition or in level for the enterprise, doesn't influence, contrary to a rife idea, the performance of the firm. The observation of a negative tie between performance and diversification would only be owed to a bad specification of models used. According to our results, it would be rather the weak performance of enterprises that would push them to multiply their sectors of activities. This result is not consistent with the existence of managerial opportunism that would find to express itself through a diversification strategy.

This article is organized as follows. The section 2 introduced data and the sample of acquisitions. The section 3 is dedicated to the exploratory analyses. Standards (OLS) regressions of the performance on the diversification and on the ownership structure are examined there. The section 4 presents our simultaneous equation system and results of evaluations. In short the last section pulls findings of the study.

2. Data

2.1 acquisitions

They are indifferently public offers (purchase, exchange, mixed) of listed firms or acquisitions of non listed firms by French listed enterprises (64% on the « règlement mensuel », 26% on the « second marché », the balance on « comptant »). The covered period goes from 1991 to 1997. The size of the target must represent at least 5% of the purchaser's turnover for the operation to be judged sufficiently large. The public offers have been counted by consultation of information notes by the COB (Commission of stock market operations) after being assured us of their success in the corresponding « année boursière ». Only the operations that corresponded to a real acquisition or that increased in a meaningful way, i.e. beyond 50%, the purchaser's control on the target, have been recorded. The maximal rate of control of the purchaser on the target before the acquisition has been fixed to 70%. Ence, we avoid to take events that would only correspond to a group's internal restructuring.

Acquisitions of non listed targets have been recorded on the 1990-1996 period by consulting the « Fusions and Acquisitions » magazine.

The date collected for the abnormal returns calculation (announcement date) is the most previous available date among : the date of announcement by the press, the date of the visa

of the SBF (French stock market Society) and in last recourse the date of the visa of the COB. The announcement date by the press is determined while consulting archives of the daily «echos» (Internet site) and those of «La tribune». Dates of the visa of receipt of the COB are on the notes of information of purchasers, those of the SBF appear there too.

The stock returns have been collected on DATASTREAM database.

The methodology of abnormal returns calculation is based on the market model. The norm is determining by simply regressing (ordinary least squares) the daily returns of stocks on those of their reference market index (CAC40 or SBF 250 if the regression appears better for the monthly settlement, the DATASTREAM second market index or « total index » for the other stocks). The period of parameter evaluation is of 200 days of stock market. This period ends 30 days before the event announcement date. Some stock suffering of too few datas have been eliminated. The abnormal returns are accumulated on 11 days framing the date of announcement. The final sample is thus composed of 122 acquisitions, 29 having accumulated abnormal returns (RAC) superior to 5%, 25 of the RACS lower to -5%, 68 between these two doorsteps.

2.2 the ownership structure

Data on the ownership structure are collected from the DAFSALIENS database. Numbers took in account are those prevailing at the previous date the closest to the event announcement date. The collected data are:

- The percentage capital owned by the manager and affiliated members (family, directors (individual entity), people having a functional role within the business (DG), shareholders listed as «friends» in DAFSALIENS). Let's note that the structure of big French business groups sometimes makes the determination of this percentage delicate. Indeed, one finds numerous firms juridically autonomous, quoted, that are controled to a large majority by another firm : the parent companie (PC). Then, we have to row up the chain of holding or affiliated companies to find, if it exists, the actual manager (manager of the PC) and his indirect ownership in the firm (as far as the chain of control is not broken). We thus get the percentage of interest owned by the real manager in the purchaser.

- The percentage owned by the directors (non executive) individual or legal entity.
- The percentage owned by the external shareholders detaining more than 1% of interest.

2.3. Other data

- The diversification: the number of SIC sectors (standard industrial classification) at the 2 and 3 numbers levels, the distribution of the turnover of every firm between its different SIC sectors has been collected from DATASTREAM, the year before the acquisition and the following year. These data being not available for all enterprises, we completed them with the yearly reports of management. Entropy index has been calculated from these data for the current exercise of the acquisition and the previous exercise (calculation at the SIC2 and SIC3 levels). The changes in these indexes between the two years, considering the relatively important size of the target, give us a measure of the diversification owed to the acquisition of the target¹.
- The Tobin's Q: it is approximate according to an adaptation of the formula proposed by Chung and Pruitt [1994]. Let's note D the total long term debt (due in more than 1 year), MV the stock capitalization of the enterprise, ANE the operating asset (net), S the inventory (net), TA the total of tangible, intangible and financial fixed assets. The formula of approximation of the Q is then :

$$Q = \frac{(MV + D - ANE)}{TA + S}$$

Let's note that these accountants and financials numbers are all taken at the end of the exercise previous the acquisition year and that they are collected from consolidated statements.

- Other data : all datas on the turnover, the long term debt... have been collected from DATASTREAM and are from consolidated statements at the end of the financial year previous the acquisition date.

¹ See appendix for a brief presentation of the entropy index.

3. Agency problem, ownership structure and diversification : preliminary analysis

3.1 the necessary conditions of an managerial opportunism by diversification

Let's define opportunism as the pursuit of his own interest to the detriment of another stakeholder. *The manager is, according to our acceptance, opportunist if, in a strategic operation, he is susceptible to satisfy his own interest while actually harming the shareholders' interest.* So that an opportunist behavior appears at the time of diversification, it is therefore necessary that two conditions are gathered :

- (1) the diversification have to be costly for shareholders
- (2) it must present an interest for the manager.

We examine these conditions successively in order to construct a set of hypotheses which will permit us to test the presence of managerial opportunism at the time of acquisitions by the French enterprises.

Condition (1) «the diversification is costly for shareholders». This proposition is contested by several theoretical arguments. The potential profits of the diversification find their sources in (a) the research of a market power or a conglomeral power², (b) the maximization of quasi-rents' appropriation by the enterprise when it possesses a strategic asset³, (c) the effect of co-insurance between activities when the enterprise combines activities that are not perfectly correlated⁴, (d) a resources allocation between activities more efficient within the enterprise than within the «external market»⁵, (e) the information revelation (and a better control) on the manager's behavior that can drag the diversification⁶.

² Anti-competitive effects of big diversified firms have been discussed since the beginning of the seventies. For a critical survey of this arguments, cf. Scott (1973).

³ For the arguments (a) and (b) cf. Montgomery (1994)

⁴ Following Lewellen (1971), this co-insurance effect should give to diversified firms a superior debt capacity compare to mono-activity firms.

⁵ Following Williamson (1975), central corporate managers of diversified firm possess an audit ability that shareholders do not have. Stein (1997) formalise this idea in the framework of an agency model.

⁶ Aron (1988) developed a model where corporate diversification is a way to reduce the agency costs and is efficient even if diversification do not permit to access to economies of scale.

But the arguments pleading for the diversification can often be reversed. The recent empirical studies show that disadvantages of the diversification for shareholders prevail over its advantages (Lang and Stulz 1994, Berger and Ofek 1995, Rajan, Servaes and Zingales 1999, Lamont and Polk 2000). The advantages of «the internal market of capital» can thus change in costs. It comes from a behavior of rent extraction by managers of divisions that would spoil the working of this internal market⁷. The discretionary allocations of funds by the general management would push managers of divisions not to undertake their better project but the one that minimizes the subsidization to weaker divisions⁸. Finally, the diversification can result from an agency problem between the general management and the shareholders. Diversification is then considered being costly for shareholders because it is undertaken in the managers own interest.

Condition (2) : « The corporate diversification is in the interest of manager ». The manager possesses indeed, following several theories, an inclination to diversify firm. Managerial theories put forward the manager's inclination to search for an increase of the size of the firm (Baumol 1959). The diversification, especially if it is realized by external growth, is a means to increase the firm size. Managers would derive several advantages of it: (a) resources under management's control contribute to increase the feeling of power that the managers benefit (Jensen, 1986); (b) the growth of the firm also allows the manager to affirm his power on his subordinate, and to ascertain their loyalty. While assuring a steady growth, the diversification offers the subordinate opportunities of promotion (Donaldson, 1984). This way, it allows the manager to possibly conclude some implicit (entrenchment) contracts with them (Paquerot, 1996). (c) numerous studies show that size and remuneration are positively correlated. Rose and Sheppard (1997) show that the diversification, if it doesn't have *ceteris paribus* positive impact on the remuneration, is nevertheless positively linked to the remuneration via its impact on the firm size. This

⁷ For example, see Scharfstein and Stein (1999).

⁸ Rajan, Servaes and Zingales (1999) build a model based on this idea. They show that a larger diversity is associate with a bigger discount of the company. Lamont and Polk (2000) confirm this result with a comparable measure of diversity.

research of growth by the manager conceals costs for shareholders. It can make the enterprise growing beyond an optimal size (surinvestment), drive to a reduction of the manager's management capabilities or to drive him to undertake a non linked diversification that may create internal conflicts concerning the cash-flows allocation.

The agency theory especially insists on the manager's risk aversion as incitement to the diversification and as source of costs for shareholders. Agency costs of the diversification are then owed to the manager desire to reduce his risk of employment (Amihud and Lev 1981), i.e. to limit his risk of reputation, of fall of income or dismissal while reducing the variability of results of the enterprise.

In the framework of the « entrenchment theory », Shleifer and Vishny (1989) propose a point of view a little more restraining concerning the interest of managers to undertake a diversification. Managers would not be systematically tempted to diversify their enterprise. Unlike, they would diversify or «surinvest» in a selective manner, in business units (or activities) where their management competencies would guarantee them a good performance vis-à-vis the possible pretenders in their job. But these selective investments in their «domain of excellence» (marketing, engineering...) would not benefit (or not a long time) to shareholders. On the contrary, they would have for objective to maximize the difference between the value of the business managed by the incumbent team and the value it would have, managed by her «second best team» available on the market for managers. It then making it expensive to dismiss the team in place. Once committed, this phenomenon is pernicious since it forbids, except to undergo an important cost, the shareholders to dismiss the manager and permits to these last to continue surinvesting in their domains of competence.

Globally, it is possible to affirm that (1) the diversification should prove to be value destructive for shareholders on the recent period and that (2) the manager possesses a propensity to diversify the firm that could push him to adopt an opportunist behavior at the time of acquisitions. We propose to search for signs of an opportunist behavior while integrating in the analysis the part of the capital owned by the manager.

3.2 performance, diversification and ownership structure : the necessary ties to conclude to a managerial opportunism

Several hypotheses are foreseeable concerning the influence of capital owned by the manager on the performance of the firm and its acquisitions. The hypothesis of « interests convergence » expresses that the more the manager owns capital, the more he supports the patrimonial consequences of his decisions and the more he is incited to manage in the interest of shareholders. As far as the diversification has a negative impact on the performance of the firm and its acquisitions, diversification should decrease with the percentage of capital owned by the manager. Nevertheless this relation is not necessarily linear since for strong stake in the capital the manager is incited to diversify his financial patrimony and to reduce the total risk rather than the only systematic risks of the firm. Otherwise the hypothesis of « interest convergence » is contested.

For Morck and al. (1988), the relation between part of the capital owned by the manager and performance is not necessarily linear. Beyond a certain level, the manager could take advantage of the capital he owns to favorise his pecuniary or non pecuniary advantage to the detriment of the others shareholders. One can transcribe this analysis at the level of the manager's propensity to undertake a costly diversification : only beyond a certain level of capital owned, the manager would make his own interests prevail and would diversify the firm. Nevertheless, it is likely that as his stake increases, the convergence of interest imposes itself and incite the manager not to undertake a value destructive diversification.

Finally, if the manager's opportunist behavior prevails, we should observe a negative, non necessarily strictly linear, relationship between the manager's stake in the capital and the level of diversification. The *tendency* to the diversification (changes in the level of diversification as a consequence of the acquisition) should then possibly increase in a first time with manager stake and decrease or being stable (protection of his financial capital) for strong percentage of capital owned.

In summary we will question managerial opportunism if : (1) diversification has a negative impact on the performance (hypothesis 1, H1) ; (2) the diversification is negatively linked to managerial stake in the equity (H2); (3) and, the tie between performance and structure of ownership is compatible with the previous relations, that means positive (H3).

3.3 test of relations predicted with classical methods

By « classical » we mean some linear regression methods (OLS) that are often used in this kind of study.

Hypothesis (1): «the diversification has a negative impact on the performance». We verify in the table 1 that acquisitions that contribute to increase the diversity of the firm are discerned badly by the market (regression 1). In the second regression, using the decomposition property of the entropy index, we observe that it is the inter-sectorial or «non linked» diversification that is responsible for weak performance of diversifying acquisitions. The regression 3 radicalizes the definition of diversification acquisitions and reinforce the previous results. An acquisition is said to be a « diversificative » one there if the firm add a new sector (level SIC2) to the old ones. The entry in a new sector misleads a decrease of the RAC, but this reduction is attenuated by the number of SIC2 sectors that possessed the enterprise before its acquisition (variable « Dummy(div)*SIC2 »): enterprises possessing 3 sectors before the acquisition don't suffer, on average, of negative RAC.

TABLE 1 :

Acquisitions performance and diversification

Regression of the abnormal cumulative returns (RAC) on various indexes of changes in firm diversification levels. The OLS regressions take account for a possible heteroscedasticity of residuals (Newey-West correction). The dependant variable is the cumulative abnormal return on $[j-5, j+5]$, where j is the announcement day, the number of observations is 107 in each regression. The values in brackets give the probability that the coefficient is equal to 0 (p value). The coefficient significantly different from 0 at 95% are in bold.

Independant variables are : **DENTROP** : changes in the entropy index between the year of the acquisition and the prior year, suffixes "LIE" and "nonLIE" means respectively the intrasectorial (link) and intersectorial (non link) components of the entropy measure of diversification. **EXP(DENTROP)** : exponential of the "DENTROP" entropy measure. **Dummy (div)** : dichotomic variable which take the value 1 if the target has a SIC code different from those of the acquirer, 0 if the acquisition doesn't add a SIC code to the acquirer. **SIC2** : The number of SIC2 codes of the acquirer the year before the acquisition. **LOG (CA)** : logarithm of the acquirer's turnover the year before the acquisition. **Dettes/MV** : ratio (total of long term debt/ market capitalization) measured at the end of the financial year prior to the acquisition.

Independant variables	(1)	(2)	(3)
Constant	0,117 (0,044)	0,168 (0,029)	0,128 (0,026)
EXP (DENTROP)	-0,041 (0,051)		-0,040 (0,075)
EXP (DENTROPLIE)		-0,005 (0,853)	
EXP (DENTROPnonLIE)		-0,083 (0,039)	
Dummy(div)			-0,047 (0,103)
Dummy(div)*SIC2			0,014 (0,064)
LOG(CA)	-0,005 (0,135)	-0,006 (0,118)	-0,006 (0,078)
Dettes/MV	0,001 (0,000)	0,001 (0,000)	0,001 (0,000)
R ² adjusted	0,041	0,029	0,041
F	2.52	1.79	1.93

We verify the same way in the table 2 that the diversification (in level) has a negative impact on the performance of firms implied in acquisitions in our sample.

The regression 1 (table2) shows that the level of diversification doesn't seem to influence the estimated value of Tobin's Q of firms. Nevertheless, the second regression shows that the linked component of diversification has a negative impact on the Tobin's Q. This negative impact is still present in regressions 3 and 4 (table 2). In short the level of debt exercises a negative impact while the growth rate of the sector doesn't seem to influence the performance.

TABLE 2 :

Diversification level and firms performance

Regression of the firms performance (estimated Tobin's Q) on various indexes of firms level of diversification. The OLS regressions take account of a possible heteroscedasticity of residuals (Newey-West correction). The dependant variable is the estimated Tobin's Q, the number of observations is 107 in each regression. The values in brackets give the probability that the coefficient is equal to 0 (p value). The coefficient significantly different from 0 at 95% are in bold.

Independant variables are : **Entrop (n-1)** : level of the entropy measure of diversification, measured for the financial year before the acquisition. Suffixes "LIE" and "nonLIE" means respectively the intrasectorial (link) and intersectorial (non link) components of the entropy measure of diversification

SIC2, SIC3 : Numbers of SIC2 and SIC3 codes of the acquirer before the acquisition. **LOG (CA)** : logarithm of the acquirer's turnover the year before the acquisition. **Dettes/MV** : ratio (total of long term debt/ market capitalization) measured at the end of the financial year prior to the acquisition.. **SectMV** : average percentage of growth of the market capitalisation of french firms which posses the same principal SIC sector as the firm studied. This average growth is calculated for the 2 years preceding and the year including the acquisition.

Independant variables	(1)	(2)	(3)	(4)
Constant	4.799 (0.000)	4.710 (0.000)	5.167 (0.000)	5.070 (0.000)
Entrop (n-1)	-0.294 (0.147)			
Entroplie (n-1)		-0.614 (0.076)		
Entroplonlie (n-1)		-0.182 (0.439)		
SIC2			0.0178 (0.270)	
SIC3				-0.020 (0.108)
Log(CA)	-0.169 (0.035)	-0.161 (0.045)	-0.208 (0.009)	-0.195 (0.015)
Dette/MV	-1.430 (0.000)	-1.433 (0.000)	-1.501 (0.001)	-1.483 (0.001)
SectMV	0.972 (0.198)	0.927 (0.226)	1.042 (0.351)	1.019 (0.384)
R ² adjusted	0.227	0.222	0.217	0.222
F	8.65 (0.000)	6.94 (0.000)	8.21 (0.000)	8.41 (0.000)

Hypothesis 2 : «The diversification is negatively linked to managerial ownership». As previously, we achieved different regressions according to the OLS method between diversification and the manager ownership at the acquisition level and then at the firm level.

At the acquisitions level, the table 3 make clearly appear that the manager propensity to diversify the firm decreases with the percentage of capital he owns. The more the manager owns capital, the less the change toward an increased diversification of the firm is large. These results are consistent with our hypothesis.

TABLE 3 :
Regressions of changes in diversification following acquisition on ownership structure variables

Regressions of changes in the indexes measures of diversification on ownership structure variables. The OLS regressions take account of a possible heteroscedasticity of residuals (Newey-West correction). The number of observations is 107 in each regression. The values in brackets give the probability that the coefficient is equal to 0 (p value). The coefficient significantly different from 0 at 95% are in bold.

Independants variables are: **Diravt** : manager's percentage of interest in the equity of the firm, measured at the prior date the closest of the acquisition announcement date. **Log(Diravt)** is its logarithm. **Extcumavt**: cumulative percentage of capital owned by known shareholders non members of the board. **Sic3**: number of SIC3 codes of the firm prior the acquisition. **LOG (CA)** : logarithm of the acquirer's turnover the year before the acquisition.

Dettes/MV : ratio (total of long term debt/ market capitalization) measured at the end of the financial year prior to the acquisition.

Dependant variables	(1) DEntropie	(2) DEntropie	(3) Dentropie liée	(4) Dentropie non liée
Independant variables				
Constant	-0.056 (0.728)	0.094 (0.553)	-0.030 (0.759)	0.124 (0.192)
Diravt	0.196 (0.091)			
Log (Diravt)		0.035 (0.029)	0.019 (0.051)	0.016 (0.050)
Extcumavt	0.561 (0.006)	0.561 (0.054)	0.396 (0.123)	0.164 (0.128)
Sic3	0.033 (0.123)	0.063 (0.047)	0.031 (0.071)	0.032 (0.060)
Log (CA)	-0.005 (0.578)	-0.012 (0.317)	0.001 (0.897)	-0.012 (0.104)
Dettes/MV	-0.019 (0.487)	-0.038 (0.297)	-0.040 (0.066)	0.002 (0.899)
R ² adjusted	0.073	0.123	0.092	0.083
F	2.669 (0.026)	2.964 (0.018)	2.423 (0.044)	2.260 (0.057)

We also notice that the concentration of the external shareholding (variable « extcumavt ») is positively linked to the diversification that implies an acquisition. This result is compatible with predictions of the Diamond and Verrechias' model (1982) in which, when managers face shareholders that can't observe their acts precisely (financial type control), they tend to privilege a reduction of the firm's risk. At the level of firms involved in acquisitions results prove to be as compliant to our waitings (cf. table 4).

TABLE 4 :

Regression of firm's diversification (in level) on ownership structure variables

Regressions of the entropy measures of diversification and its components on ownership structure variables. The OLS regressions take account of a possible heteroscedasticity of residuals (Newey-West correction). The number of observations is 107 in each regression. The values in brackets give the probability that the coefficient is equal to 0 (p value). The coefficient significantly different from 0 at 95% are in bold.

Independant variables are: **Typecontrôle**: ratio (percentage of capital owned by directors bound to the CEO(affiliated directors)/ percentage owned by director non bound to the CEO). **Squared (Diravt)**: (diravt prior variable)² **Cube (Diravt)** : (Diravt)³. The **others variables** are presented in the prior tables.

Dependant Variables	(1) Entropie	(2) Entropie	(3) Entropie	(4) Entropnonlie	(5) Entropie
Independent variables					
Constant	-0.483 (0.155)	-0.424 (0.222)	-0.394 (0.265)	-0.171 (0.620)	-0.314 (0.089)
Diravt	-0.751 (0.000)	-1.831 (0.001)	-3.714 (0.000)	-1.170 (0.009)	-0.227 (0.054)
Squared (Diravt)	-	1.705 (0.030)	8.942 (0.010)	1.004 (0.050)	-
Cube (Diravt)			-6.456 (0.024)		
Typecontrôle	-0.008 (0.000)	-0.008 (0.000)	-0.008 (0.000)	-0.005 (0.001)	-0.003 (0.004)
Extcumavt	0.000 (0.984)	0.165 (0.819)	0.001 (0.826)	-	-
Log (CA)	0.082 (0.001)	0.081 (0.001)	0.081 (0.001)	0.042 (0.087)	0.043 (0.001)
Dette/MV	0.227 (0.107)	0.227 (0.120)	0.226 (0.116)	0.210 (0.175)	0.014 (0.820)
R ² adjusted	0.274	0.295	0.307	0.218	0.099
F	9.01 (0.000)	8.38 (0.000)	7.711 (0.000)	5.678 (0.000)	3.952 (0.005)

The different specifications tested in the first three variables show that the relation between level of diversification and managerial ownership can be considered as linear (regression 1), even though other specifications are valid on our data (regressions 2 and 3). Regressions 4 and 5 show that it is especially the non link (intersectorial) component of the diversification that can be considered as non linearly link to managerial ownership while its link component is associated in a linear way to the manager engagement in the capital.

In conclusion signs of a managerial opportunism are gathered. To be sure of this, we have to verify that the relation between manager ownership and performance is consistent with the prior results. Since the diversification seems value destructive and that, the more the manager owned equity the less he diversifies the firm, we should observe a positive relationship between performance and manager ownership of the firm. Tables 5 and 6

confirm that such a relation exists, even though this one receives a weak statistical significance level when the performance is measured at the time of acquisitions.

TABLEAU 5 :

Acquisitions performance and ownership structure

Regression of cumulative abnormal returns on ownership structure. The OLS regressions take account of a possible heteroscedasticity of residuals (Newey-West correction). The number of observations is 107 in each regression. The values in brackets give the probability that the coefficient is equal to 0 (p value). The coefficient significantly different from 0 at 5% level are in bold.

Independent variables: cf. prior tables

Variables	Constant	Diravt	Type contrôle	extcum	Delta risque	Log (CA)	Dette/ MV	Sectmv
RAC	0.047 (0.535)	0.061 (0.090)	0.001 (0.177)	0.002 (0.142)	-0.063 (0.124)	-0.000 (0.970)	-0.028 (0.253)	0.022 (0.091)

R² adjusted : 0.123 ; F : 1.907 (0.077)

At the acquisitions level, the positive relation shown is significant only at a 10% level. Levels of statistical significance are a lot more important when we consider the relation between manager ownership and performance of the firm measured with the Tobin's Q (table 6).

TABLE 6 :

Regressions of ownership structure variables on firms Tobin'Q

The OLS regressions take account of a possible heteroscedasticity of residuals (Newey-West correction). The number of observations is 107 in each regression. The values in brackets give the probability that the coefficient is equal to 0 (p value). The coefficient significantly different from 0 at 5% level are in bold.

Independant variables: cf. prior tables.

Dependant variables	(1) q estimé	(2) q estimé
Independant variables		
Constant	4.281 (0.001)	4.336 (0.001)
Log(Diravt+1%)	1.933 (0.017)	
Diravt		1.458 (0.025)
typecontrôle	-0.016 (0.005)	-0.016 (0.005)
Extcumavt	-0.016 (0.410)	-0.016 (0.421)
Log(CA)	-0.152 (0.058)	-0.154 (0.058)
Dette/MV	-1.550 (0.000)	-1.549 (0.000)
Sectmv	1.049 (0.154)	1.050 (0.154)
R ² adjusted	0.278	0.276
F	7.62 (0.000)	7.54 (0.000)

The relationship between these variables is decreasing, possibly with a decreasing coefficient (regression 1, the explanatory variable is Log (Diravt)).

The set of results are in agreement : signs of the leader's opportunist behavior seem gathered. It is besides often following this methodology that previous studies concluded to the opportunist propensity of managers diversifying strategy (cf. Amihud and Lev, 1981, or more recently Dennis and al., 1997). We nevertheless think that the methodology is questionable, in particular because it doesn't consider the reciprocal relations that can exist between the main variables studied.

3.4 A necessary reconsideration of the data treatment

The methodology previously followed and the tests performed pose two problems susceptible to provide biased estimated coefficients and to mislead us in mistake in the results interpretation.

In the first place, the prior hypotheses and tests performed suppose that the sense of causality goes from the diversification to the performance. However, several arguments plead in favor of a inverse causality (or determination) sense : the performance level may

influence diversification. For Rumelt (1974, p. 82) firms with a main activity sector weakly performant are incited to diversify. The ressources based view tell us that an effective firm (in regard with its capacity to generate cashflows) posses the necessary conditions to diversify (Chatterjee and Wernerfelt, 1991). Following the Shleifer and Vishny's model (1989), managers of weakly effective enterprises are incited to diversify in order to « re-entrenched » themselves. This time again, it is the level of (relative) performance that is the causal element of the diversification. The Amihud and Lev hypothesis (1981) is also compatible with a causality going from the performance to the diversification. If the manager is incited to protect his risk of employment by diversification, it may be because the enterprise endures a weak performance and that his employment risk is consequently raised. Results of studies having tempted to explicitly determine the sense of causality of the relation remain mitigated. They conclude either to the «classic» sense (diversification \Rightarrow performance) (Lang and Stulz, 1994), either to a predominance of the inverse causality (Grant, Jammie and Thomas, 1988), but remain prudent in their conclusions.

If a reciprocal relation between diversification and performance prevails, the OLS regressions previously performed drive to biased estimated coefficients. This is the direct consequence of the break of one fundamental assumption of these regressions : the independancy between residues and the explanatory variables of the regression.

If one of the explanatory variables is itself explained by the explained variable, this hypothesis cannot be respected. We must therefore resort to a method that permits to palliate this possible bias.

A modelling specifying no sense of causality *a priori* is much more important than it will drive us, beyond the correction of the bias on the estimated coefficient, to reconsider the interpretation of results concerning the presence of a managerial opportunism. Indeed, in the hypothesis of a negative impact of the performance on the diversification, the probability of occurrence of an opportunist behavior is reduced. Shareholders, the manager and the firm that he manages are then in a situation which is *a priori* not comfortable. Then, the diversification has to be interpreted more as a conservatory reaction on behalf of the manager and, even though he profits from this strategic movement, the situation let him

little discretionary margin to increase his satisfaction to the detriment of the shareholders' interest. If diversification drive performance, we won't be able to conclude to the demonstration of an managerial opportunism.

Secondly, the methodology exposed in the previous paragraph doesn't permit to take simultaneously in account the diversification, the performance and the ownership structure. However it seems to us that, if the manager adopts an opportunist behavior, he will simultaneously take account of the performance anticipated, of the diversification and of his stake in the capital. These elements must be integrated simultaneously. Otherwise, Loderer and Martin (1997) and Cho (1998) observe that causality goes from performance to the manager ownership, and not from ownership to performance. This result is amazing concerning a relationship that have been studied for a so long time. It can be interesting to also test this relation on the French market.

In summary, we must used a model that takes simultaneously in account diversification, performance and manager's ownership and that considers some reciprocal relations between diversification and performance, and between managerial ownership and performance.

4. Tests in a simultaneous equations framework

We successively treat our data in the setting of acquisitions (where the performance is measured by the RAC and the diversification is measured in changes), and in the setting of firms involved in these acquisitions (the performance is then measured by the Q and the diversification is in level).

4.1 the case of acquisitions

The specification of the model is founded on the previous section developments. **The acquisitions performance (RAC) should be function**, of course of the tendency to the diversification, possibly of the capital owned by the manager. These three variables are endogeneous. We integrate in addition:

- The relative change of the firm's risk following the acquisition, the third section (table 5) having shown a surprisingly (weakly significant) positive impact of this change on the performance.

- The importance of capital owned by directors bound to the manager relatively to the capital owned by non bound directors. This variable, while defining the power that possesses the manager in the board, should be negatively bound to the performance.
- The external shareholding capital concentration.
- The logarithm of the market capitalization (size variable that should be negatively linked to the RAC).
- A dichotomic variable which take the value 1 if the operation is a public offer, 0 otherwise (when the target is non listed). This last variable represents the different bargaining condition the manager faces when the operation is public and when it is not. In a parallel way it partially takes in account the financing of the acquisition (a public offer having *a priori* greater probability to be financed by stocks than an acquisition of a non listed firm). However, it prevents us from introducing the financing of the operation directly in the model. The financing of the operation is probably not independent of the structure of the capital (risk of control dilution at the time of stock financing) nor of the level of diversification or risk of the operation. If we integrate the financing of the operation, we would therefore have to endogenise this variables, that is to say to define it according to ties that it maintains with the others variables. We therefore exclude financing variables in a quite arbitrary way. Our model is necessarily simplifying and can't integrate all possible interrelationships between the firm's financial stakeholders.

The tendency to the diversification is function from other endogenous variable. The other explanatory variables of the changes in diversification level, considered as exogenous, are :

- The level of diversification before the operation (measured by the number of SIC3 codes) in the sense that this level is «fixed» at the time of the acquisition and could influence the manager's choice.
- The importance of capital owned by directors bound to the manager relatively to the capital owned by non bound directors. A large value of this variable indicates a weak control on the manager. He is little submitted to risks (employment risk) that incite him to diversify the firm when his financial stake in the firm capital is weak. He therefore loses advantages to the diversification on one hand, but on the other hand he possesses of means

to undertake diversifying acquisitions for their other advantages (size, prestige, implicit contracts...), thanks to this entrenchment lever. The effect of this variable is, *a priori*, indeterminate.

- The external shareholding capital concentration. This one rises the risk incurred by the manager by increasing the pressure of a financial type control. Our hypothesis stipulates that these external shareholders could tolerate a diversification, a positive effect of this variable should dominate.
- the size measured by the logarithm of the market capitalization at the end of the exercise prior the acquisition.
- The change in the firm total risk in that it can influence the manager's choice concerning the desirable level of diversification to reach in regard of the (anticipated) risk level the manager targets.

Finally, **the specification of the equation defining the level of managerial ownership** integrates the performance and in addition : • The firm size measured by the logarithm of its market capitalization, because the manager's stake is constrained by his own wealth (more the capitalization is big, more it is likely that he will owned a weak part of it). • The total risk of the enterprise (cf. Demsetz and Lehn, 1985): more the business will be risky, less the leader will be minded to invest some important sums there, he will prefer to diversify his financial portfolio. Several measures of the risk are proposed by Demsetz and Lehn (1985): we display, in respect with the Amihud and Lev hypothesis (1981), a preference for the total risk of the enterprise. • The concentration of the external shareholding that could dissuade it, account held of the risk that it makes him to support, to invest in his firm, or on the contrary to incite him to invest there in order to clear itself of this constraint (entrenchment). • the level of diversification measured by the number of SIC3 sectors of the firm. The model is therefore:

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$$RAC_{1j} = \alpha_{11} + \beta_{12} \cdot diversif_j + \beta_{13} \cdot \% DIR_j + \alpha_{14} \cdot typeacqu_j + \alpha_{15} \cdot \frac{Etype3_j}{Etype1_j} + \alpha_{16} \cdot typecont_j + \alpha_{17} \cdot extcum + \alpha_{18} \cdot LOG(MV)_j + \varepsilon_{1j}$$

$$Diversif_{2j} = \alpha_{21} + \beta_{22} \cdot RAC_j + \beta_{23} \cdot \% DIR_j + \alpha_{24} \cdot SIC_{3j} + \alpha_{25} \cdot \frac{Etype_{3j}}{Etype_{1j}} + \alpha_{26} \cdot typecont_j + \alpha_{27} \cdot extcum + \alpha_{28} \cdot LOG(MV) + \varepsilon_{2j}$$

$$\% DIR_{3j} = \alpha_{31} + \beta_{32} \cdot RAC_j + \alpha_{33} \cdot SIC_{3j} + \alpha_{34} \cdot extcum_j + \alpha_{35} \cdot Etype_{1j} + \alpha_{36} \cdot LOG(MV) + \varepsilon_{3j}$$

with: α_{ij} exogenous variable coefficients; β_{ij} endogenous variable coefficients, exogenous and endogenous variables are explained in the table of results; ε_{ij} a residual term. Specified thus, the model is identifiable. Results of the evaluation achieved on our 107 observations appear in the table 7.

TABLE 7 :
Simultaneous equations analysis of acquisitions performance, diversification and manager's ownership

Simultaneous equations system estimated by the Two Stage Least Square (2SLS) technic.

Endogeneous variables are: the acquisition performance (measured by RAC), the diversification implied by this acquisition (measured by the change in the exponential of the entropy measure of diversification).

Exogeneous variables are: **Type acquisition** : =1 if public offer (OPA, OPE, mixte), 0 otherwise (acquisition of unlisted firm); **SIC3** : number of SIC3 segments reported by the acquirer; **Etype3/Etype1** : Ratio of firm's total risk after the acquisition on total risk before the acquisition. Total risk is measured by standard error of stock's returns. **Type contrôle** : ratio (percentage of capital owned by directors bound to the CEO (affiliated directors)/ percentage owned by director non bound to the CEO). **Extcum** : cumulated percentage of capital owned by the known external shareholders. **Log(MV)** : Log of acquirer market capitalization at the end of the financial year before the acquisition.

Explained variable	Performance (RAC)	Diversification (EXP(Delta Entropie))	Manager's ownership (%DIR)
<hr/>			
Explicative variables			
Constant	-0.033 (0.816)	0.879 (0.013)	1.435 (0.000)
RAC		-0.356 (0.677)	0.416 (0.519)
EXP(Delta Entropie)	-0.029 (0.778)		
%DIR	0.133 (0.017)	0.272 (0.244)	
Type acquisition	-0.000 (0.992)		
SIC3		0.048 (0.008)	-0.028 (0.036)
Etype3/Etype1	-0.078 (0.060)	-0.134 (0.388)	
Type contrôle	0.001 (0.071)	0.001 (0.741)	
%extcum	0.295 (0.044)	0.734 (0.155)	-0.836 (0.0192)
Etype1			-8.745 (0.058)
Log(MV)	0.006 (0.284)	0.005 (0.804)	-0.062 (0.000)
<hr/>			
R ² adjusted	0.028	0.108	0.296
P (stat de Wald)	0.000	0.000	0.000

Contrary to Loderer and Martin [1997] we note that the part detained by the manager determines the performance of the operation (equation 1). This relation is more statistically significant than with the classic methodology. It confirms that the part detained by the manager exercises an incitative effect at the time of an acquisition. On the other hand, the performance of the acquisition, that we can consider as opportunities of profitable growth (partially anticipated by the manager), doesn't determine the part he owns in the equity (equation 3). Therefore, one of the hypotheses necessary to exhibit an opportunist behavior

is corroborated. We have to verify if this opportunist behavior appears through the diversification that achieves the acquisition.

However for the other relations between endogenous variables, results are different from those observed with a classical approach. In particular, *when variables are simultaneously taken in the model, the diversification doesn't exercise any more impact on the performance of the acquisition (regression 1). The anticipated performance doesn't seem either to guide the strategic tendency that initiates the operation (regression 3). No tie is shown between diversification and performance.* Consequently, traces of the manager's opportunist behavior by diversification can't be raised. This interpretation is confirmed by the fact that the part detained by the manager doesn't influence the diversification implied by the acquisition (regression 2).

4.2 the case of firms implied in acquisitions

A system, similar in spirit to the one presented for acquisitions, has been builded. Results of the evaluation are presented in the table 8. Regressions appear more significant for firms taken in their whole except for the level of diversification that remains little explained.

TABLEAU 8 :

Simultaneous equations analysis of firm performance, diversification level and percentage of capital owned by the manager

Simultaneous equations system estimated by the Two Stage Least Square (2SLS) technic.

Endogeneous variables are: the acquisition performance (measured by Tobin's Q), the diversification in level (measured by the entropy index), the percentage owned by the manager.

Les variables exogènes sont : **Etype1** : firm total risk before the acquisition. Total risk is measured by standard error of stock's returns over 200 stock exchange days before acquisition. **Type contrôle** : ratio (percentage of capital owned by directors bound to the CEO(affiliated directors)/ percentage owned by director non bound to the CEO). **Extcum** : cumulated percentage of capital owned by the known external shareholders.

Log(MV) : Log of acquirer market capitalization at the end of the financial year before the acquisition.

Croissance secteur : average Growth rate of market capitalization of french firms having the same main sector as the acquirer on the tree years preceding and including those of the acquisition.

Explained variables	Performance (Q)	Diversification (Entropie)	Manager's ownership (%DIR)
<u>Explicatives variables</u>			
constant	4.644 (0.005)	0.857 (0.161)	1.454 (0.000)
Q		-0.174 (0.005)	0.048 (0.009)
Entropie	-0.461 (0.236)		
%DIR	0.810 (0.496)	-1.080 (0.001)	
Type contrôle	-0.020 (0.099)	-0.013 (0.001)	
%Extcum	-1.431 (0.616)	-0.872 (0.338)	-0.747 (0.251)
Log(MV)	-0.189 (0.079)	0.027 (0.451)	-0.074 (0.000)
Croissance secteur	0.901 (0.086)		
Etype1			-8.80 (0.021)
R ² adjusted	0.128	0.041	0.256
P(Stat de Wald)	0.000	0.000	0.000

Results present some considerable differences with those of the previous table. This time, the performance is not influenced by the capital owned by the manager but it determines this percentage. The firm past performance and its growth opportunities that are «capitalized» in its market value influence management ownership positively (regression 3), but the reciprocal relation doesn't appear (regression 1). It is compliant to the result of Cho [1998] who observes an positive impact of the Q on the manager ownership without the inverse relationship being significant. Loderer and Martin [1997] conclude also to a determination of manager's ownership by the performance of the firm (q of Tobin), but its impact is negative in their results. This result, somewhat atypical in relation to results and

findings generally drawn, doesn't fundamentally refute the existence of a managerial opportunism : the manager could undertake a value destructive strategy of which he would support a cost as much weaker than his financial stake in the capital decreases with the performance of the enterprise. This interpretation finds a support through the meaningful negative impact of manager's ownership on the diversity of the enterprise (regression 2). The causal chain that draws these two results, seems to indicate that the leader decreases his capital ownership when the firm performance lowers and that he then undertake a corporate diversification. One could see traces of an opportunist behavior there.

Nevertheless the necessary conditions to the demonstration of an opportunist behavior by diversification are not gathered since the first regression indicates that the diversity of the enterprise doesn't exercise any impact on the performance. On the contrary, the firm diversity is determined by its performance as measured by Tobin's Q (regression 3).

5. Conclusion

To the 3 initial questions of the introduction we are tempted therefore to answer in a quite moderate way. The part of the capital owned by the manager influences the quality of his decisions positively in the setting of acquisitions. However the firm's growth opportunities (here measured by the Q) incite the manager to increase his capital ownership. We would be therefore tempted to conclude that it is in firms with high growth opportunities that managers, strongly engaged in the capital, achieve better acquisitions. To the second question, our answer is more categorical : nor the strategic tendency that initiates the acquisition neither the level of diversification have any influence on the performance of the enterprise. In conclusion, if one tempts to make a synthesis of these two results to answer to the third question (existence of a managerial opportunism at the time of diversifying acquisitions), we answer in a negative way. We cannot suspect an opportunism that supposes the existence of phenomena (negative impact of the diversification on the value...) that we don't observe.

Our survey puts in relief the impact of the methodology and of «*a priori*» (or implicit hypotheses) that it conceals on the results and on the interpretation that follows. We show that the «cost of diversification» often cited in the recent studies may (at least partially) correspond to a bias in evaluations or to the forgetting of the non recursive relations that

often prevails, of a theoretical view point, between variables. We think that researches, especially concerning the diversification/ performance relationship, have to be extensive and have to integrate the « endogeneity » of strategic decision of the firm⁹. Furthermore, the studies show that it is difficult to exhibit opportunist behavior with statistical analysis on samples. On average, managerial opportunist behaviors against shareholders can't be exhibited on the present period. This is not so surprising in a period in which shareholders' interest (the « financial capital ») is lauding to the skies. As a consequence, managers have, on average, no interest to act against this critical resource for the firm. This not to say that *the opportunist inclination* hypothesis has to be rejected. This hypothesis proved to be useful in explaining some phenomena. Beyond, exhibition of *opportunist behaviors* against shareholders should better be searched in clinical studies than in statistical studies in the recent period.

⁹ On this question of endogeneity, one can see Campa and Kedia (1999).

APPENDIX 1: diversification index

The indication of entropy is calculated according to the formula:

$$E = \sum_{i=1}^n p_i \cdot \ln \frac{1}{p_i}$$

Where p_i represents the respective weight of the i sector in the total turnover of the enterprise, n is the number of sectors of the enterprise. With an equal number of sector, this index increases if the turnover of the firm is distributed in a more egalitarian manner between its different sectors of activity.

An increase of this index translates therefore a least specialization of the enterprise. This index grants a important weight to the small sectors of the firm.

The exponential of the entropy indication is called «equivalent number of branches», it gives the number of branches in which the firm would intervene considering the value of its index, if its turnover was equi-distributed between its sectors. The entropy index possesses a property of decomposition: it can be decomposed in the sum of the diversification at the SIC2 level (diversification so-called intersectorial or non linked) and of the diversification at the SIC3 level (intra-sectorial or linked diversification).

In our study the term « diversity » refers exclusively to the index value at a moment. The term « diversification » refers to this same value or, more often, to the change in the index between the acquisition year and the year after.

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